DOCUMENT RESUME

ED 213 070 EA 014 259

TITLE	School Size: A Reassessment of the Small School. Research Action Brief Number 21.
INSTITUTION	ERIC Clearinghouse on Educational Management, Eugene, Oreg.
SPONS AGENCY	National Inst. of Education (ED), Washington, D.C.
PUB DATE	Feb 82
CONTRACT	400-78-0007
NOTE	5p.
AVAILABLE FROM	ERIC Clearinghouse on Educational Management, University of Oregon, Eugene, OR 97403 (free).
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Academic Achievement; Comprehensive Programs; Consolidated Schools; Cost Effectiveness; Educational Quality; Educational Research; Efficiency; Elementary Secondary Education; Expenditure Per Student; Input Output Analysis; Public Opinion; *School Size; School Support; *Small Schools

ABSTRACT

The movement toward school consolidation was triggered by James Bryant Conant's contention that larger schools are more efficient and offer more comprehensive programs. Many studies seem to support the claim that larger schools are cheaper to operate. Yet problems with these studies include wide variation in the minimum, optimum, and maximum sizes favored by writers and difficulties in comparing cost figures. Furthermore, there is great disagreement in the research about whether larger schools in fact offer higher quality education. Some studies suggest that schools can be both too small and too large to be effective, with 1,600 to 1,700 suggested as the optimum size for high schools. The most reliable studies show that size makes no difference in academic achievement. Regardless of research findings, parents favor smaller schools. Research suggests that this predilection may result from the presence of innovative and involved teachers, supportive atmosphere, and closer connections between principal and staff in small schools. Perhaps educators should look for ways to overcome shortcomings of small schools and accentuate their advantages. (Author/JM)

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ED213070

Number 21 February 1982

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EA 014 259

School Size: A Reassessment of the Small School

Some educational issues are hardy perennials. They may not bloom every year, but to veteran educators it may seem so. The school size issue is one of these perennials. The question of what is the best or the most efficient school size has been discussed for decades, particularly in rural areas.

The dominant voices in this discussion have argued that efficiency requires the consolidation of small schools into larger ones for an "economy of scale." The press for consolidation was also boosted by a desire for comprehensiveness, which became prominent in 1959 with James Bryant Conant's *The American High School Today: A First Report to Interested Citizens.*

Of the twenty-one recommendations Conant offered for improving the schools, the one receiving most prominence was reducing the number of small high schools. Those he perceived as being unable to offer advanced classes in such areas as mathematics, science, and foreign languages. He asserted that "the number of small high schools must be drastically reduced through district reorganization. Aside from this important change, I believe no radical alteration in the basic pattern of American education is necessary in order to improve our public high schools."

Conant's recommendation triggered a precipitous reduction in the number of small rural schools and school districts. James W. Guthrie cites figures showing that between 1930 and 1972 the number of school districts dropped from 128,000 to 16,960, the number of schools from 262,000 to 90,800, and the number of one-room schools from 149,000 to 1,475. During this same time the population of the country increased by 85 million, suggesting how many more students were enrolled in those remaining schools.

Until the 1970s, consolidation was primarily a rural phenomenon. Since then the effects of declining enrollment have been felt in the cities and suburbs. Schools that had grown large by administrative design began to shrink as a result of changing demographics. The presence of underused schools in the era of voter resistance to increased educational costs prompted a natural reaction—the closing of small schools to reduce perceived inefficiencies and to preserve specialized programs.

The consolidation movement had its detractors, but the times were against them. Thought to be untutored rustics, the opponents of consolidation won few battles. But once the conflict was joined in the cities and suburbs, new opponents with more political clout raised their voices against school closures. Along with the shift of consolidation from the countryside to the city, then, has come a reassessment of all the old arguments for consolidation and increased school size.

Some long-standing partisans of small schools may now be enjoying the opportunity to say that the dominant opinion favoring largeness was wrong. More important, however, is the attempt to determine just what the advantages and disadvantages of both larger and smaller schools are so that informed judgments can be made. This Brief looks at the old and the new findings concerning school size and then looks at

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This *Research Action Brief* was prepared by the ERIC Clearinghouse on Educational Management for distribution by the National Association of Secondary School Principals.

how the new understanding of size might be put to use in improving the schools' standing in the community.

Efficiency and Comprehensiveness

Over the years, two groups of arguments favoring larger schools have carried the day. First, larger schools are cheaper to operate than are smaller schools. According to this economic argument, consolidating schools produces efficiencies of scale by reducing the number of administrators, teachers, librarians, and support personnel needed for a given number of students and by facilitating discount purchases, among other advantages inherent in large size.

That larger is cheaper is supported by specific studies. Carroll W. McGuffey and Carvin L. Brown, for example, examined the effect of school size and utilization rate on maintenance and operation costs. Particularly at the secondary level, per student costs were higher in small schools. Furthermore, utilization rates were even more strongly correlated with costs. A secondary school at 100 percent capacity in the district McGuffey and Brown studied cost about $38 per student to operate. If the use rate dropped to 90 percent, the cost increased by about $15 per student, and a further drop from 90 percent to 80 percent resulted in another increase of approximately $23 per student.

The second group of arguments concerns educational quality and comprehensiveness. Larger schools, it is said, have sufficient students to justify offering specialized classes, hiring better qualified teachers, and, generally, offering a broader range of classes and cocurricular and support activities.

Evidence supporting these claims is extensive. Clifton Fonstad examined 137 studies on the subject and found that about 90 percent of those that considered such factors as per pupil costs and curricular offerings favored larger schools. Furthermore, teachers with advanced degrees, extensive experience, and training in specialized areas were more likely to be found in larger rather than smaller high schools.

On the whole, then, the research has seemed to demonstrate that larger is both cheaper and more comprehensive.

Is the Evidence Reliable?

Although this evidence seems overwhelming, studies were not always in agreement; taken as a whole, the research contained some inconsistencies that have laid it open to criticism. For instance, the fundamental question of what is "larger" and what "smaller" was answered in myriad ways. The wide variation in minimum, optimum, and maximum sizes favored by writers is pointed out in a report by the Educational Research Service (ERS) that summarizes 119 publications printed between 1924 and 1974. The minimum sizes recommended were from 195 to 720 for elementary schools, about 600 for middle schools, from 90 to 1,500 for junior highs, and from 100 to 1,600 for senior high schools. The optimums ranged from 350 to 720 for elementary schools, from 750 to 800 for middle schools, from 521 to 1,200 for junior highs, and from 293 to 2,000 for senior highs. The maximums ranged from 350 to 1,500 for elementary schools, from 900 to 1,400 for junior highs, and from 1,000 to 3,000 for senior highs.

The overlapping of these ranges is a major weakness in the research literature. Not only is one person's "smaller" school another person's "larger" school, but some suggestions for what makes an optimum size are larger than what others see as a maximum. This and other problems in the literature make it difficult to compare studies and thus impossible to draw hard and fast conclusions about optimum school sizes. These problems have prompted researchers such as William F. Fox to conclude that the question of economies of size is still unanswered because most of the studies on the issue are conceptually or methodologically flawed.

Even the correlation between student enrollment and expenditures per student, which seems to be a readily quantifiable and straightforward measure, opens a Pandora's Box of intricate problems. Among the simplest problems to address are those surrounding the cost figures. What is included? Some districts include capital expenses whereas others do not. Again, are there local conditions that make the cost figures incompatible? Jonathan P. Sher and Rachel B. Tompkins argue that the differences in transportation costs alone make many comparisons impossible. How can one compare the costs per student in an urban district in which students can walk to school with those in a district in which all students must be bused, some across great distances?

Inevitably, the more difficult question of quality arises. The original arguments for larger schools made the twin claims that they were cheaper and better. Comprehensiveness was preeminent in claims of what makes larger schools better, but a host of factors are now included in such considerations.

In partial explanation of why it backed away from setting clear ranges of cost-efficiency, the ERS report explains that if one is to compare costs, what is being offered at those costs must be equivalent. Not all studies of the differences in per pupil expenditures among different sizes of schools sought to measure the quality or offerings of the education being provided. As a result, these studies are of little value in making comparisons.

Studies that do account for the quality variables are more useful, but they don't make the task of drawing comparisons easy. As both William H. Clements and Fox, among others, note, there is no agreement on what constitutes the goals of education and there is no set unit of either educational quality or quantity. Without that agreement, it is very difficult to measure a school's quality.

In lieu of a direct measure of quality, surrogates have been chosen. The ERS labels these surrogates input, process, and output variables. Input variables measure what goes into an educational system (for instance, money, teachers, and students), process variables are concerned with what happens during education (relationships between teachers and students, the number of classes of different kinds offered), and output variables measure what [illegible] at the end of schooling (test scores, student success in college). Most people admit that these are substitutes for a more perfect standard that doesn't yet exist.

There is, however, little agreement on the reliability of these indicators. Each has been used as the basis for a study (see the charts in ERS and Fonstad); consequently, each study has been attacked for its choice of indicators and for the methods used to test the indicator. Sher and Tompkins, for instance, point out that most early studies of the relationship

between school size and academic achievement showed some degree of positive relationship between larger size and student achievement. None of those studies, however, controlled for the intelligence or socioeconomic class of the students in the schools, a crucial omission. Sher and Tompkins claim that no recent studies that do control for intelligence and social class show a positive correlation between large school size and student achievement.

Similarly, others argue that the presence of teachers with advanced degrees and many years of experience, two supposed indicators of quality, does not necessarily correlate with increased student achievement.

Not even the arguments for the greater comprehensiveness of larger schools have withstood recent criticism. Although the range of classes and activities does increase with school size, the increase is not necessarily proportional to the increase in the student body. As a result, a student's chances of getting into one of the specialized classes may go down as school size goes up. David L. Morgan and Duane F. Alwin found this to be true of student participation in extracurricular activities. With certain exceptions, the available number of openings for participation in extracurricular activities was greater in absolute numbers in larger schools. However, the percentage of the student body that could be accommodated in those activities was higher in smaller schools. Thus, the opportunity and motivation for participation in the life of the school are better in smaller schools. On the whole, then, it can be persuasively argued that more students participate more fully in the range of school activities in smaller schools. This increased participation may well be a better indicator of school quality than the sheer number of curricular and cocurricular offerings.

Implications

If it were possible to reach conclusions on the advantages and disadvantages of different school sizes based on the traditional areas of concern, the results would be mixed.

Despite flaws in the research, even such critics as Fox and Guthrie are willing to acknowledge that there are some economies of scale apparent in comparisons of per pupil costs and student enrollment figures. Although there are many qualifications, the optimum range of high schools in terms of cost effectiveness is probably in the neighborhood of 1,600 to 1,700 students, give or take a hundred (see Fox and Guthrie). As Fox notes, the cost function is a U-shaped curve; that is, from this optimum size, costs go up both with increases and with decreases in size. How this optimum size range applies to a particular school must be determined by many local factors.

With respect to curricular offerings and student achievement, "bigger is better" holds in some respects but not in others. Larger does usually mean better for exceptional students, as Guthrie points out. But larger may also mean that fewer students actually get to take advantage of the specialized and technical classes that are supposed to be a strength of larger schools. In terms of academic achievement, the most reliable studies—which control for student ability and family income—show that size makes no significant difference (see Guthrie's review, for example).

In the absence of clear-cut support for the superiority of large or small schools on the basis of cost, comprehensiveness, and student achievement, the determination of the appropriate or best school size must shift to other grounds.

References

1. Clements, William H. "Ideal High School Size: A Mirage in the Desert." 1970. 24 pages. Order from EDRS. ED 055 689. MF $0.91 PC $2.00.

2. Educational Research Service. *Size of Schools and School Districts. ERS Information Aid No. 8.* Washington, D.C.: 1971. 40 pages. Order from EDRS. ED 055 355. MF $0.91 PC not available.

3. Fonstad, Clifton, compiler. *What Research Says about Schools and School Districts . . . Factors Related to Effectiveness. A Report.* Madison: Division for Field Services, Wisconsin State Department of Public Instruction, 1973. 68 pages. Order from EDRS. ED 085 892. MF $0.91 PC $5.30.

4. Fox, William F. "Reviewing Economies of Size in Education." *Journal of Education Finance,* 6, 3 (Winter 1981), pp. 273-96. EJ 242 372. Contact Institute for Educational Finance, University of Florida, 1423 Norman Hall, Gainesville, FL 32611 for information.

5. Guthrie, James W. "Organizational Scale and School Success." *Educational Evaluation and Policy Analysis,* 1, 1 (January-February 1979), pp. 17-27. Order from UMI. EJ 207 325. $10.00.

6. McGuffey, Carroll W., and Brown, Carvin L. "The Relationship of School Size and Rate of School Plant Utilization to Cost Variations of Maintenance and Operation." *American Educational Research Journal,* 15, 3 (Summer 1978), pp. 373-78. Order from UMI. EJ 189 652. $10.00.

7. Montgomery County Public Schools. *Report of the Small Schools Task Force.* Rockville, Maryland: 1973. 27 pages. Order from EDRS. ED 125 111. MF $0.91 PC $3.65.

8. Morgan, David L., and Alwin, Duane F. "When Less Is More: School Size and Student Social Participation." *Social Psychology Quarterly,* 43, 2 (June 1980), pp. 241-52. Order from UMI. EJ 233 235. $8.00.

9. Sher, Jonathan P., and Tompkins, Rachel B. *Economy, Efficiency, and Equality: The Myths of Rural School and District Consolidation.* Washington, D.C.: National Institute of Education, 1976. 47 pages. Order from EDRS. ED 135 507. MF $0.91 PC $3.65.

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One important area of concern during this time of dwindling support for the schools is that of citizen and parent relationships with the schools. Parents have long favored smaller schools, particularly when those schools can be considered neighborhood schools. The extent of this feeling is readily apparent in those districts that are attempting to close schools because of reduced enrollments.

Perhaps some of the reasons parents favor smaller schools are pinpointed by a study of the Montgomery County, Maryland, schools. In that district smaller schools were found to have teachers who are more innovative; have "emergent" staffs that take on administrative responsibilities and have a voice in the running of the schools; have a family atmosphere in which children, teachers, and parents can know each other and create a supportive atmosphere; have close community relationships; and have a principal who knows a staff and can make the best use of it. To these claims, reduced rates of violence and vandalism can be added.

The Montgomery County study also found that smaller schools had a number of shortcomings: they had staffing problems because there were fewer staff members, students had little choice of teachers, there were fewer approaches to teaching, there was little use of specialists, and there were fewer books, materials, and pieces of equipment. Perhaps educators should look for ways to overcome these shortcomings of small schools so as to cash in on their advantages.

The limitations of small schools are significant but perhaps not insurmountable. Resourceful educators have found ways to deal with limited facilities, staffs, and offerings while keeping an eye on costs. Many small schools offer good programs with per pupil expenditures that are lower than those of larger schools; efficiently run small schools can cost about the same as inefficiently run large schools.

If some schools are facing closure, each should be studied to see what its costs are and the kinds of programs it offers. If little difference in costs between larger and smaller schools is found, perhaps the smaller ones can be kept. If certain smaller schools cost less to operate than do others, then the reasons for this can be explored and what is learned can be used to advantage in reducing the costs of other small schools.

The attempt to find ways to make the programs and costs of small schools acceptable has a great deal of appeal during this time when the schools must have all the friends they can get. Ample evidence shows that increased conflict over the schools, which surely arises when a school is considered for closure, negatively affects support for the schools in financial elections. To a large extent, the optimum school size is the one that supports the kind of education the community wants at a cost it is willing to pay. Perhaps this implies that the schools need to be as concerned with parent and community perceptions of the quality of the schools as they are with such issues as comprehensiveness and costs per student.

The Montgomery County study concluded that the determining factors of a school's quality were the principal's leadership, community support, and the qualities of the staff. Perhaps these should be the areas of greatest concern to educators.

This publication was prepared with funding from the National Institute of Education, U.S. Department of Education under contract no. 400-78-0007. The opinions expressed in this report do not necessarily reflect the positions or policies of NIE or the Department of Education.

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Prior to publication, this manuscript was submitted to the National Association of Secondary School Principals for critical review and determination of professional competence. The publication has met such standards. Points of view or opinions, however, do not necessarily represent the official view or opinions of the NASSP.

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